

a demodulator operable to demodulate the received n-level VSB modulated signal into a digital reception signal.

30. A signal transmission apparatus for transmitting an n-level VSB signal, comprising:

a modulator operable to modulate an input signal into an n-level VSB modulated signal and to allocate code points along a uniaxial modulation coordinate system, said modulator comprising a filter having a plurality of coefficients which are a series of impulse responses defined by plotting time base responses to the VSB modulated signal along an in-phase axis and an orthogonal axis for filtering a series of said code points allocated along the uniaxial modulation coordinate system; and
a transmitter operable to transmit the VSB modulated signal.

31. A signal transmission and reception method for transmitting and receiving an n-level VSB signal, said method comprising a transmission method and a reception method,

said transmission method comprising:

modulating an input signal into an n-level VSB modulated signal, allocating code points along a uniaxial modulation coordinate system, and filtering a series of the code points allocated along the uniaxial modulation coordinate system with a filter having a plurality of coefficients which are a series of impulse responses defined by plotting time base responses to the VSB modulated signal along an in-phase axis and an orthogonal axis, and

transmitting the VSB modulated signal; and

said reception method comprising:

receiving a transmitted n-level VSB modulated signal, and

demodulating the received n-level VSB modulated signal into a digital reception signal.

32. A signal transmission method for transmitting an n-level VSB signal, comprising:

modulating an input signal into an n-level VSB modulated signal, allocating code points along a uniaxial modulation coordinate system, and filtering a series of the code points along the uniaxial modulation coordinate system with a filter having a plurality of coefficients which are a series of

impulse responses defined by plotting time base responses to the VSB modulated signal along an in-phase axis and an orthogonal axis; and
transmitting the VSB modulated signal.

33. A signal receiving apparatus comprising:
a tuner operable to receive a transmission signal containing a digital modulated signal and an analog modulated signal and to select the digital modulated signal using a local oscillation signal;
an interference detector operable to compare the digital modulated signal selected by said tuner with a predetermined pattern in order to detect interference caused by the analog modulated signal; and
a notch filter operable to remove a carrier of the analog modulated signal in a same frequency band as a frequency band of the digital modulated signal when the interference is detected by said interference detector, and to pass the digital modulated signal without removing a carrier of the analog modulated signal when the interference is not detected by said interference detector.

34. A signal receiving apparatus according to claim 33, wherein the digital modulated signal is an n-level VSB modulated signal.

35. A signal receiving method comprising:
receiving a transmission signal containing a digital modulated signal and an analog modulated signal and selecting the digital modulated signal using a local oscillation signal;
comparing the selected digital modulated signal with a predetermined pattern in order to detect interference caused by the analog modulated signal; and
removing a carrier of the analog modulated signal in a same frequency band as a frequency band of the digital modulated signal when the interference is detected, and passing the digital modulated signal without removing a carrier of the analog modulated signal when the interference is not detected.

36. A signal receiving method according to claim 35, wherein the digital modulated signal is an n-level VSB modulated signal.

37. A signal receiving apparatus comprising:

a tuner operable to receive a transmission signal containing a digital modulated signal and an analog modulated signal and to select the digital modulated signal using a local oscillation signal;

an interference detector operable to compare the digital modulated signal selected by said tuner with a predetermined pattern in order to detect interference caused by the analog modulated signal; and

an NTSC rejection filter operable to remove a carrier of the analog modulated signal in a same frequency band as a frequency band of the digital modulated signal when the interference is detected by said interference detector, and to pass the digital modulated signal without removing a carrier of the analog modulated signal when the interference is not detected by said interference detector.

38. A signal receiving apparatus according to claim 37, wherein the digital modulated signal is an n-level VSB modulated signal.